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THE ADJUSTMENT OF CROP STATISTICS. III.

IN two former papers the crop estimates and reports furnished by the Department of Agriculture have been analyzed. They have been carefully compared with the returns furnished by the census and have been found to differ widely from the latter. In order to secure a basis for trustworthy judgments concerning the relative worth of these statistics, it therefore became necessary to review the processes employed in compiling them, by the two offices under investigation, and to point out possible sources of error. Incidentally, it was found expedient to detail the facts of the inquiry made in the autumn of 1902 by representatives of the National Board of Trade.

From these analyses and investigations the conclusion was reached that, whatever may be the statistical errors of the census, it is certainly much nearer the truth in its recent crop figures than is the Department of Agriculture; and that the figures of the latter office are not only so wide of the mark as to be clearly absurd, but contain many inconsistencies, contradictions, and absolute impossibilities. Worst of all, it was shown, certain features of these statistics give the impression of arbitrary alteration, made possibly with a view to greater correctness, but none the less confusing in the absence of explanation.

What is the cause of the unfortunate and discreditable statistical situation outlined in these papers? To whom is the responsibility for it chargeable? How can the ground be cleared for better work? And what should that work be? Should the government crop reports continue on their old lines, or should some limitation or alteration of their scope be effected? These questions are of pressing moment. They cannot safely be neglected in view of the great and growing business of our produce exchanges. Yet they can be answered only by a careful study of certain political and quasi-political influences which are not fully understood; and by an analysis of some of the inner

problems of the government statistical service at Washington. To such a study and analysis this paper is addressed.

I.

In examining, first of all, the statistical organization of the Department of Agriculture, two very distinct questions evidently present themselves, viz.: (1) Is the system of reporting now employed the best that can be had? (2) Is the present system so carried on as to yield *its* best results? Of these queries, the second is naturally the one to be answered first.

It is only within very recent months that detailed information concerning the working of the Division of Statistics in the department has been afforded. When the apparent errors in the work of the division, already outlined, began to make their appearance in an obnoxious form some months ago, questions naturally were raised concerning the methods employed by the division, and it was found that the business world was almost destitute of information on the topic. That the department collected its data through correspondents and special agents, after a plan outlined in a former paper,¹ was of course known to all. That it made up certain percentage estimates, based upon the information thus secured was equally familiar. But who were these correspondents? How were they appointed? Were they competent men? And did the division follow rigidly the returns gathered by it? Did it pursue a proper mathematical method in preparing weighted averages? No one could say.

In this dearth of information, seeking some clue by which to guide to a judgment in appreciating wherein errors might lie, various commercial interests naturally sought information from the department itself. Among these, the most prominent, probably, were those which were concerned with the production and sale of cotton. Learning, late in 1901, that the division had made certain changes in the mode of securing returns from correspondents, and recognizing what seemed to be gross and unmistakable errors in current estimates, Messrs. Henry Hentz & Co., the well-known commission merchants of New York, addressed

¹ See this JOURNAL for December, 1902, p. 4-9.

a letter to Secretary James Wilson under date of December 9, 1901, in which they asked (1) for copies of the forms sent to cotton correspondents; (2) for information whether estimates were based upon reports made to the department for yields of *seed* or of *lint* cotton per acre; (3) for a statement locating, by states, 700,000 acres of planted cotton said by the department to have been abandoned during the year; and (4) for a statement whether allowance was made by the division for the natural tendency of growers (who might be correspondents) to exaggerate damage to growing crops.¹

From a review of these questions, it will be apparent that the information asked was of the most everyday character, and such, it would be supposed, as any citizen of the country had an absolute right to demand and receive. Under date of December 21, 1901, after a delay of many days, Secretary Wilson, however, wrote, in part, as follows:

Your letter is a request for certain information relative to the methods by which the statistician's estimate of the cotton crop of the present year, issued on the 3d instant, was arrived at. If your questions were answered, you would have an immense advantage over everybody else in the country in your study, from day to day, of the cotton situation, and it does not seem to me to be right that you should be put in such a position. I do not object to saying to you that, not only were the returns upon which the statistician's recent report was based more numerous than ever before, that the department's correspondents contained a much larger proportion than at any time in the past of persons not directly interested in the extent and value of the crop, and that the experience gained by the statistician in connection with his approximately correct estimates of the last two years was fully utilized in the making out of the report of December 3; but what allowance, if any, was made for tendencies or supposed tendencies on the part of certain classes of correspondents it would be highly improper for me to communicate to you. Nor do I feel called upon to explain to you the reason for any changes of schedules or to justify any of the methods in use, any more than I should consider it necessary or proper to justify to you changes in the personnel of the department's correspondents.²

¹ See pamphlet entitled "Correspondence between Hon. James Wilson [etc.] and Henry Hentz & Co. of New York Respecting the Crop-Reporting Methods of the Department." Printed for private circulation, New York, December, 1902. An account of the correspondence, with quotations, is also to be found in the *New York Journal of Commerce and Commercial Bulletin*, December 13, 1902.

² See correspondence, as before cited; also *New York Journal of Commerce*, etc.

Thus it appears that Secretary Wilson's answer to the inquiries propounded to him consisted merely in a suggestion that the questions had been asked from interested motives. The secretary neglected the obvious possibility of publishing a reply in the *Crop Reporter* or through some other official medium, and hence of putting all those interested in the problem upon precisely the same level as concerned information. Messrs. Hentz & Co., in a reply dated January 4, 1902, repelled the implied suggestion that they were pecuniarily interested in cotton on one or the other side of the market, and pointed out the absurdity of the refusal to furnish copies of the blanks sent to correspondents. To this letter the only answer was a refusal by Secretary Wilson, dated January 10, to discuss the subject further, and with this the questioners were forced to content themselves. The truth seems to be that the department, annoyed and irritated by the current criticism of its figures, adopted a policy of secretiveness. That, of course, was a possible means by which to silence comment, since it would deprive critics of the material they needed.

This correspondence was not at first made public, and other inquiries of the same character are said to have been rebutted in similar fashion. Several months later, a more complete letter of inquiry, in which searching questions were marshaled in consecutive order, was addressed to the department by the editor of the *New York Journal of Commerce and Commercial Bulletin*. Under date of October 18, 1902, he wrote:

We are fully aware of the difficulties of crop reporting and are confident that it is the earnest desire of the department to make its reports as perfect as circumstances will permit. Nevertheless, the fact remains that confidence in the government cotton-crop report has been seriously impaired by recent experiences; and our own opinion, supported by those in the trade, is that there is a continued tendency in this report to exaggerate injury, and, unintentionally of course, to report condition lower than it really is. Something of this loss of confidence could be partially, if not entirely, removed if the cotton public had a better knowledge of the methods adopted in the compilation of these reports. The trade should have some idea as to the occupation of men selected as correspondents, as to the methods of compilation, as to the methods of averaging reports, as to allowances, if any, for exaggeration and bias, etc.

Both growers and buyers alike are injured by misleading reports, and

information carrying such great weight as the government reports ought not to be compiled by secret methods, leaving the public no means of ascertaining allowances made for error. It is certainly due to the cotton trade, and would relieve the government crop bureau of unnecessary distrust, to know something more definite of the methods of compilation. Such a policy would promote confidence in the government returns; each individual could then place his own value upon the report and make his own allowances for bias, instead of being compelled, as at present, to accept as a basis the arbitrary results of unknown and distrusted methods.¹

In the same letter was inclosed the following list of questions :

1. How many regular cotton correspondents has the Department of Agriculture ?
2. What is the average number of replies received each month from regular correspondents ?
3. What proportion of correspondents, approximately, is made up of growers ?
4. Is any allowance made for exaggeration of damage in these reports ?
5. How many traveling cotton correspondents has the department ?
6. What weight does the department attach to reports of its traveling correspondents—that is, if general correspondents reported a condition of 70 and traveling correspondents a condition of 75, what method of consolidation would be adopted ?
7. Is there usually any striking difference between the report of regular and traveling correspondents ?

It will be seen at once that, had these questions been fully answered, the result would have been to give a tolerable insight into the methods of the department, in reporting for cotton. The questions, in fact, were the evident product of one familiar with the cotton problem, and covered the real issues of the situation, viz., the number and character of the correspondents (questions 1–3), the number of traveling correspondents sent out to check the returns of local correspondents (question 5), and the problem of allowances for bias on the part of correspondents, as well as for variations between the local men and the special agents. Most important of all, however, it should be noted that the express intention of publishing the reply was avowed, and thus was destroyed all basis for a charge that the information was desired for the sake of some interested person.

Secretary Wilson in his reply, however, merely ignored the

¹ See *Journal* above referred to for November 12, 1902.

questions thus put to him. He confined himself chiefly to an attempted rebuttal of the suggestion that faith in the statistical work of his department had been weakened. He wrote:

Congress, in authorizing this department to get the facts regarding cotton, acted not alone for the benefit of dealers and speculators in cotton, but also for the benefit of growers of cotton. You have been speaking of the extensive sources of information at the command of houses in New York and other cities. Doubtless this consideration was in the mind of Congress when it required the Department of Agriculture to obtain information for the benefit of the growers. As the Cotton Growers' Protective Association (of the South), the Texas Cotton Growers' Association, and the Association of Commissioners of Agriculture of the Southern States have all recently passed very strong resolutions indorsing the work of the department, it seems that we are satisfying the growers, and we regret it if we are not also satisfying those who deal in the staple.

This letter excited lively surprise. It amounted practically (1) to a claim that an opposition of interests existed between farmers and growers of staples, on the one side, and traders or speculators on the other; and (2) to an avowal that it was the aim of the department to "satisfy growers" and to publish figures designed for their "benefit." It will have been observed from what has been said in former papers that the figures of the Division of Statistics had, in nearly every cited case, been far too low, and Secretary Wilson's letter now seemed to be taken by traders as an explanation of that important fact. Too low figures naturally create an impression of scarcity, hence tend to strengthen prices, hence would "benefit growers," though perhaps injuring "speculators." There is one trouble with this reasoning, viz.: there being speculators always on both sides of the market, the process of benefiting growers would naturally benefit also one set of speculators. The letter was by some interpreted to mean, therefore, that the department desired chiefly to help the "bull side" of the market.

II.

A new phase of the controversy made its appearance with the opening of the session of Congress in the winter 1902-3. An important matter that had been carried over from the preceding session was the bill creating a new cabinet portfolio—

that of Commerce and Labor. One reason why this bill had excited so much controversy was found in the fact that the new department was to be made up largely of bureaus transferred from other departments and whose taking over was resisted either by the bureaus themselves or by the departments to which they belonged. Among these bureaus was the Division of Statistics in the Agricultural Department. When the bill establishing the Department of Commerce and Labor came up for consideration by the House Committee on Interstate and Foreign Commerce, therefore, the head statistician of the division, Mr. John Hyde, was summoned as a witness. He offered the following reason for not transferring the Division of Statistics to the Department of Commerce :

The Division of Statistics of the Department of Agriculture, whatever it may be in statute books and appropriation bills, whatever it may be nominally, is really, practically, a great aggregate, or organization, of farmers for their mutual protection, to do for them that which they cannot do for themselves by any association—state grangers, national grangers, or any other organization—that is intended to protect them against the speculator.¹

This statement, coming from the official head of the Division of Statistics, was a surprise to the committee. Charges of undue connection with, or influence over, the government are often made against special classes in the community, though these charges are more often preferred by farmers than against them. The Treasury has been accused of undue tenderness for Wall street and the banks; but that a department of the government should appear as an organization of a special class was unusual, not to say alarming. It seemed to confirm the inference drawn from the language used by Secretary Wilson, in the letter already quoted, that the figures of the division were issued with the idea of bettering prices in the supposed interest of the producer.

Mr. Hyde further stated that—

Of the 240,000 correspondents, crop reporters, which the department has, fully 210,000 are farmers, and they regard the statistical work of the department as being their own work, or in their own interest.²

¹ *Hearing before the Committee on Interstate and Foreign Commerce . . . on S. Bill 569*, etc., p. 41, Washington, 1902.

² *Ibid.*, p. 41.

Pressed to furnish specific details about cotton, the witness also admitted that—

Information with relation to cotton is gathered from about 50,000 planters, 40,000 ginner, and certain special agents located at important cotton markets, and special agents who are sent from Washington.¹

And again that—

The success of our operations is due to the fact that 85 per cent. of its correspondents are farmers, taking the average of the country, and 85 per cent. are planters, probably, in the South, and they feel to some extent that it is their work.²

Later an interesting dialogue took place between Mr. Hyde and Hon. W. C. Lovering, a member of the committee:³

Mr. Lovering: How do you employ these men [the correspondents of the department]? Who suggests them to you, or how do they come to you?

Mr. Hyde: A great many of them have been corresponding with the department for eight, or ten, or fifteen years.

Mr. Lovering: In what class are they?

Mr. Hyde: Eighty-five per cent. of them, taking the country as a whole, are farmers, and I presume in the South 85 per cent. are planters.

Mr. Lovering: They are planters?

Mr. Hyde: Yes, sir.

Mr. Lovering: And as a rule they generally give a pretty bearish statement of the outlook?

Mr. Hyde: They have never been known to report the condition higher than it really was.

* * * * *

Mr. Lovering: Are there any of these people who make these reports who are conceded to be in the interest of buyers?

Mr. Hyde: No, I do not think there are.

* * * * *

Mr. Lovering: They [correspondents] may be said to be representative men on the side of the planters, may they not?

Mr. Hyde: In a sense.

* * * * *

Mr. Lovering: They are local bankers and local merchants?

Mr. Hyde: Local bankers and local merchants. You might say that the entire South as a unit is interested in getting a good price for its cotton.

Mr. Lovering: Bulling the market; bearing the crop and bulling the market?

Mr. Hyde: Yes, sir.

¹ *Ibid.*, p. 42.

² *Ibid.*, p. 54.

³ *Ibid.*, pp. 49-51.

Finally, the important question of establishing allowances for bias was taken up. Questioned as to the methods employed by him for reconciling estimates in those cases where returns from different people in the same locality varied, Mr. Hyde said that a conclusion was reached

by ascertaining how near, during the few preceding years, each class of correspondents came to what was ultimately found to be the fact. When the cotton was all moved, all marketed, and the different transportation lines in a state have all reported to us, as they do without exception, then we know exactly what amount of cotton was raised and where it was raised, and it is not difficult to ascertain what percentage of error was found in the work of each class of correspondents; and that is made the rule for my guidance the following year.¹

Further on in the examination, too, Mr. Hyde said that :

When we prepared the report which was given out on the 3d instant, I had before me six different sets of figures—one from the state statistical agent, one from the county correspondents, each reporting from his own county; from the township reports, from the magisterial districts, and from the southern bankers and merchants.²

It has been thought best to give these important colloquies at some length because they convey information never publicly developed, prior to the session at which the testimony was given, and because of the extreme significance of the statements they include. It will be directly inferred from the citations already given and from the hearing as a whole—

1. That the correspondents of the Division of Statistics were to the extent of at least 85 per cent. farmers and planters.

2. That these farmers and planters invariably reported the crop condition too unfavorably, and that this fact was recognized.

3. That the work of the department was intended to guard the supposed interests of these correspondents.

4. That the statistician had before him tabulated returns from different classes of correspondents, and that past deviations of these correspondents from actual fact were employed merely in formulating a rule to be used as might be thought best for the statistician's guidance in determining percentages.

¹ *Ibid.*, p. 42.

² *Ibid.*, p. 51.

III.

The evidence thus submitted is urged by some as substantiating the claim that the Division of Statistics is not organized upon proper principles, since it seems (some think) more anxious to aid growers than to state facts. How far such a claim is correct is of course a matter of individual judgment, which the reader can now determine for himself.

A more difficult problem is raised when the charge is made that the details of organization within the division leave much to be desired. Probably the plainest statement to this effect ever made in official form was put by the Committee of the National Board of Trade, which, as already seen, reported among other matters that¹

The Statistical Division is more or less embarrassed, and seemingly to an important degree, by the manner in which the working force of the office is organized under political influences ;

while it urged that²

The working force under the statistician, including state agents, should be thoroughly reorganized on a sound business basis, recognizing qualification and giving certainty of efficiency in such service.

Such a statement, coming from the crop statistics committee under the conditions which surrounded its investigation, is worthy to be carefully weighed. It, however, does not stand alone as an indicator of conditions that perhaps do not work for the best interests of the public service. On sundry occasions the National Civil Service Commission has taken exception to modes of employment or organization in the division. Thus, in one instance, the commission saw fit to annul an examination held for the purpose of making an appointment in the division, reporting as follows :³

An investigation was made into the integrity of an examination held June 18 and 19, 1901, for the position of special statistical compiler in the Department of Agriculture. The scope and character of the examination were

¹ *Report of Committee of Inquiry into methods of the Census Bureau and of the Department of Agriculture.* See also this JOURNAL for June, 1903.

² *Ibid.*

³ *Nineteenth Annual Report of Civil Service Commission* (Washington, 1902), p. 163.

suggested by the department and a special examination requested. The questions and tests were prepared for the commission by Mr. John Hyde, statistician, and other experts of the department. Sixteen competitors were examined, ten of whom were at the time employed in the department as unclassified laborers, six being assigned to the Division of Statistics. After a most careful inquiry into the facts, the following conclusions were reached by the commission, largely deduced from the testimony of the statistician himself:

First, that the examination for special statistical compiler was designed to afford opportunity for the examination of unclassified laborers in the Division of Statistics and to restrict competition to competitors who had actual experience in statistical work in government employ. Second, that unclassified laborers of the Division of Statistics had a decided and unfair advantage in the examination as a result of their assignments of work. Third, that employees of the Division of Statistics were improperly and unfairly assisted in their preparation for the examination by disclosures made by Mrs. Bertha Burch, stenographer to the statistician, who, in pursuance of her work, copied the examination questions and had them in her custody, the statistician having instructed her to give all the help in the examination she legitimately could. The examination was therefore canceled, and no subsequent examination under this designation has since been held.

Moreover, when the charge of the crop statistics committee, already cited, made its appearance, commissioner W. D. Foulke, then chairman of the Civil Service Commission, attempted an investigation, but found it impossible to get what he considered satisfaction, or to secure evidence either from the department or from the committee.¹ Other incidents indicating dissatisfaction

¹Features of the controversy above referred to are interestingly treated in a letter written by commissioner Foulke to Mr. Charles B. Murray (chairman of the crop statistics committee) and which ran in part as follows (Washington *Evening Star*, February 21, 1903):

"The case, therefore, stands thus: Your committee charges that the statistical division of the Department of Agriculture is organized under political influences, making it impracticable for the statistician to reconstruct the service on a basis of qualification and efficiency. On November 29 we asked you to inform the commission, whose official duty it was to inquire into the evils complained of, in what respect these influences exist, by whom and upon whom they are exerted, and the source of your information in this particular. You did not furnish this information.

"On January 14 I met you, together with Mr. H. A. Wroth, another member of the committee, and Mr. William S. Harvey, also a member, who came in during the conversation. I asked you the sources of your information, and you referred to the Division of Statistics itself, and to Mr. Hyde, the chief of that division, in particular. I asked you in what way the political influences were exerted, upon whom, and how,

with conditions in the department might be cited; but here also the conclusions to be reached must be left to the reader, available evidence being too fragmentary for any general or decisive verdict. That the business world feels alarm concerning the situation in the office appears from the often reiterated charge that a "leak" exists somewhere in the force. By this is meant that the official condition estimates and percentages are in some cases given out too early to persons who are interested in the price of the staples reported upon. Were this charge true, it would of course reflect serious discredit upon someone, although it might be difficult to point out the precise person. The charge has been strongly rebutted by Secretary Wilson, who in the well-known letter to Senator W. B. Allison wrote thus:¹

I wish to say to you in conclusion that the labor involved in the making of crop estimates is very greatly increased by the extreme precautions that are taken to render impossible the premature disclosure of official information. . . . Occasionally there are offered for sale on one or another of the exchanges figures alleged by their possessors to have been privately secured from some employee of the department. A claim of this sort put forth in December, 1900, was urged with such vehemence and persistency that I deemed it proper to have it investigated by officers of the secret service, who found it to be without a shadow of foundation. . . . The position of the

and you did not tell me. I asked you to let me see the testimony which you had taken and upon which you based your report, and you declined. You spoke of old men being employed in the Division of Statistics, and asked, if found that old men were thus employed who could not be dismissed, whether I would infer that they were kept in by political influence. I answered that it might be politics or it might be compassion, and then asked you whether it was wholly as a matter of inference that you charged that political influences existed. Mr. Wroth denied this with energy, insisting that you had specific information, but although I asked I was unable to find out what it was, Mr. Harvey saying that it was confidential.

"It is hard to understand either the public spirit or the reliability of those who thus publish serious charges against a branch of the federal government and then decline to furnish either specifications or evidence to those whose official duty it is to investigate. The public must judge how far the so-called report of your committee of inquiry into agricultural statistics is entitled to credit or respect when those who sign and publish it decline to substantiate or even to specify their charges. It hardly lies in the mouth of any of the authors of such a charge, when refusing to substantiate it, to say: 'It is not plain to us that the commission need find much difficulty in discovering the conditions which justify it.' It is upon you and your committee that we have the right to call for the specific information."

¹ *Crop Reporter*, March, 1902, pp. 4, 5.

department is absolutely unassailable, since with regard to the more important crops no approach to a definite estimate can possibly be made until within one or two hours of the time fixed for its publication. The final computations are made by the statistician personally.

Similar lengthy and emphatic statements have been made on other occasions,¹ but have not been granted full credence by persons outside Washington.²

It is unnecessary, however, to enter into doubtful questions of the kind just suggested. An opinion, merely, is all that can be expressed in the absence of official investigation of the organization of the department, and that can readily be formed from the evidence that has already been cited.

IV.

But, is the present system of reports the best that can be devised, granting that it is properly conducted? It has already been seen that crop returns may be either estimates of what is likely to take place in the future, or exact statements about facts that already exist. We have seen, too, that it is the latter with which the Department of Agriculture has chiefly concerned itself, and that this plan received the indorsement of the committee representing the National Board of Trade. In spite of all that has been said to the contrary, however, it ought to be evident that the only real way in which to get a thoroughly satisfactory system of crop reporting by the government is to have the returns, when published, relate, not to opinions, but to facts. After all, it makes little difference how large is the body of men from whom estimates are collected. Some affect to believe that average judgment never can go wrong if it be a real average, and the well-worn dictum of President Lincoln on an allied subject is often called upon to do yeoman service in support of this opinion. It must, however, remain true that

¹Testimony of Secretary James Wilson before Subcommittee on Appropriations of the Committee on Agriculture, House of Representatives, January 14, 1903, *Hearings* (Government Printing Office, 1903), p. 390.

²See, for example, files of New York *Journal of Commerce and Commercial Bulletin*, December 5, 1902, p. 1, col. 1, and of the *Commercial West*, June 27, 1903, p. 11, col. 1.

the resultant of all such estimates can be only an estimate. It is impossible to make a silk purse out of a sow's ear. If estimates be thoroughly truthful and well intentioned, the fact nevertheless remains that weakness added to weakness does not make strength, and that human fallibility added to fallibility does not produce correctness. At the best, therefore, an estimate based upon no matter how many correspondents is likely to be untrustworthy, and if it be given the government sanction, it conveys to ignorant minds the idea that it possesses some peculiar virtue. How defective all such estimates are likely to be is shown by history, as already explained in this series of papers.

The first and cardinal point to be attained in reorganizing our crop statistics is a change in their scope. The government cannot afford to publish anything except facts. It may be complained that to accomplish such a result would imply giving up the publication of condition or crop reports in the future, but such is certainly not the case. There are in all cases three factors in the crop situation that can be ascertained with absolute accuracy if sufficient pains be taken. These are (1) the acreage planted throughout the country; (2) its distribution among crops of different kinds; and (3) the weather conditions prevailing at various times throughout the growing season. All of these factors are now subjects of report, the first two by the Division of Statistics, the third by the Weather Bureau. It would seem that, with these data at hand, if correctly stated, the wisest course would be to leave the producers and dealers of the country to form their own estimates of the probable future of crop condition. Too little attention has been given to the problems of acreage. The Boards of Trade committee admitted that many errors had crept into the work of the department through a faulty study of area. What is wanted, of course, is not estimates of area, but actual knowledge of the facts in the case, and these can, naturally, be obtained only by a census method. In the case of certain crops, doubtless, more information about actual yields will be wanted and can be had. Thus in the case of cotton we have within the past two years developed a system whereby

estimates are for the most part superseded and a plan of reporting on actual facts substituted. By going direct to the ginner the paid employees of the census have succeeded in getting, with remarkable accuracy, returns concerning the amount of cotton treated by the ginning establishments. Inasmuch as their operations are, proportionately, similar in corresponding months throughout a series of years, it will not be long before it can be ascertained with almost absolute accuracy just what relation the work done in a given month bears to the work done during the corresponding month of the preceding year, and hence the relation between the total crops in these years. In other words, we are in a fair way to get rid of estimates and to substitute actualities, as far as relates to cotton.

It may properly be inquired how far the methods applicable to cotton would be applicable to other crops. Cotton, of course, lends itself peculiarly well to this kind of treatment. Yet in nearly all crops which are not largely consumed on the farm the same methods may be employed. More and more, agriculture is assuming a localized character. The great wheat fields of the Northwest send their product into commercial centers, where it is milled. The storage of unground wheat occurs chiefly at a few points. Figures on milling could easily be published as is now done for cotton ginning. It has been proposed to have a census of threshed wheat, and this would certainly be far from impracticable. In these ways abundant figures supplementing those for acreage and the data relating to planting and to weather conditions would be at hand. Experience with cotton gives every reason to anticipate accuracy in such returns; and what is true of cotton and wheat is true of tobacco. By a closer study of the commercial movement of this staple, it would be possible to apply some of the methods which have been found helpful with cotton. It would be harder to achieve good results with hay and corn, since they are largely used on the farm. Yet even here it deserves to be noted that the subject in which interest is primarily felt is not the amount raised, but the amount thrown, or to be thrown, on the market. It is the latter that directly affects price, and not the former, and there can be no

doubt that a careful system of figures under which the returns for corn should be attacked from the standpoint of the amount marketed, or about to be marketed, would be vastly more instructive than the vague estimates concerning the amount produced, which, as we have seen, never can be verified.

V.

Before offering any constructive suggestions for the future, there yet remains one problem of organization for serious consideration. It has been questioned, not merely whether the Division of Statistics was efficiently conducted; not merely whether some better system of reporting might not be substituted for that now employed by the division, but whether any system of the kind should be carried on by the Department of Agriculture. In short, it has been doubted whether the work of the Division of Statistics does not duplicate that done in other departments and whether, at all events, a transfer of the division to some other department might not work for the good of the public service.

In order to answer these questions properly, a brief review of some recent history is demanded. Until very recently, the statistical service of our government has lacked co-ordination and oversight. Whenever a branch of the government felt the need of statistics to serve its ends, it organized a bureau or division for their preparation. The result of all this was a tangle of statistical offices at Washington, issuing bulky volumes of figures that were often mutually contradictory—so much so, in some instances, that it was necessary to suppress occasional numbers of the publications in which they appeared. Perhaps there is no class of figures in which this duplication existed to such an extent as in those relating to crops. Not only does the Division of Statistics issue its periodical estimates and its yearly statements, as already described, but the work of the Weather Bureau touches at many points upon the same topics and provides a mechanism which could well have been intrusted with the preparation of the percentage estimates. Moreover, with the organization of the Census Bureau upon a permanent basis, a period

of much greater duplication has set in. The prospect of an annual census of agriculture would naturally, if realized, render annual estimates by the department unnecessary, and provide a machinery much better fitted than that of the Division of Statistics for monthly estimates, if the latter were desired. This would unavoidably have raised the question of amalgamating the Division of Statistics with the Census Bureau in order to avoid the cost of duplication and the absurdities of constant contradictions. Particularly, however, has the wisdom of such an amalgamation been pointed to by the ninth section of the act of March 6, 1902, establishing a permanent census office, which contained the following words:

In addition to the statistics now provided for by law, the director of the census shall annually collect the statistics of the cotton production of the country, as returned by the ginner, and bulletins giving the results of the same shall be issued weekly beginning September 1 of each year and continued till February 1 following.

Had the Census Office been able to carry out the provisions of this section, it is clear that the weekly and monthly estimates of the department on cotton would have been entirely superseded, since the statements of cotton ginned, when once harvesting had been begun, would have been roughly equivalent to statements of cotton grown. It was not foreseen at first that the preparation of a weekly cotton census would be out of the question for some time to come, and a strong stimulus was given to the idea of amalgamation. At about the same time that the notion of amalgamating the Division of Statistics with the census became prominent, the idea of erecting a Department of Commerce came to the front. The demand for such a department was at first little more than the froth of our feeling of rising prosperity. Hazy talk about foreign markets, and a growing mercantilist faith that such markets could be "developed" by the government, were responsible for the department in the first instance. Later, when the promoters of the new scheme devoted some thought to what they had been saying, they saw that practically the only function such a department could have would be that of consolidating and reorganizing the statistical work of the government. This

in itself was a worthy object, though perhaps undeserving of the erection of a new department for that special purpose. At all events, a bill creating the department was introduced in the Senate during the session 1901-2, and was passed by that body, sent to the House, and referred to the Committee on Interstate and Foreign Commerce. Here a debate arose which carried the bill over to the winter of 1902-3. In considering the Department of Commerce bill, the House committee called before it representatives of the older departments and inquired into the expediency of transferring to the proposed new cabinet office certain bureaus already in existence. At that time the influence of the Department of Agriculture seems to have been thrown against the transfer of the Division of Statistics. The result was that the new bill when passed, said not a word of the transfer of the Division of Statistics. Further, although it granted to the president power to transfer bureaus and divisions from practically every other department, it expressly omitted to grant such authority in the case of the Department of Agriculture. Section 12 of the act was curiously and quaintly worded and read, in part, thus :

SEC. 12. That the president be, and he is hereby, authorized, by order in writing, to transfer at any time the whole or any part of any office, bureau, division, or any other branch of the public service engaged in statistical or scientific work, from the Department of State, the Department of the Treasury, the Department of War, the Department of Justice, the Post-Office Department, the Department of the Navy or the Department of the Interior, to the Department of Commerce and Labor; and in every such case the duties and authority performed by and conferred by law upon such office, bureau, division, or other branch of public service, or the part thereof so transferred, shall be thereby transferred with such office, bureau, division, or other branch of the public service, or the part thereof which is so transferred.

It is now necessary to look back for a moment at another episode in this story. Some two years ago, it was proposed by the House Committee on Agriculture, in the interest of harmony and economy, to turn the work of the Division of Statistics over to the Weather Bureau (both of these offices being at present organized under the Department of Agriculture). Such a provision was incorporated into the House draft of the bill carrying

appropriations for the Department of Agriculture for 1902-3, passed in the late winter of 1901-2. When the bill was sent to the Senate, it of course fell into the hands of the Senate Committee on Agriculture, where certain persons sought to strip the unexpected amendment from the original draft. The two parties to the controversy being more evenly matched than was supposed, no extreme action proved to be practicable, and a compromise was arranged. It was agreed that the question of amalgamating the Division of Statistics with the Weather Bureau should be referred to the secretary of agriculture, and that he should report a year later upon the advisability of amalgamating the two offices as thus proposed. The result was an apparent determination on his part not only to retain the Division of Statistics as an independent organization, but even to enlarge its scope. One important factor in the situation lay in the circumstance that the census had been made permanent and that the Department of Commerce was evidently an assured fact for the immediate future. Any agitation or proposal for statistical changes was likely to precipitate the discussion of the suggested transfer to the new department, for such proposals would be a practical admission that existing conditions were unsatisfactory and that some change was desirable. Moreover, the growing importance of the census would be offset by corresponding enlargement in the Division of Statistics.

The desire for larger appropriations and more importance in the statistical work of the Department of Agriculture was reflected in the report of the Crop Statistics Committee, which, as has been seen, recommended that the division be given "the strength and power of a bureau . . . with an increased appropriation, if necessary." Secretary Wilson at the opening of the session 1902-3 strongly favored the retention of separate organization for the Division of Statistics. But when the agricultural appropriation bill for the coming fiscal year was taken up by the House committee (January, 1903), the problem of transferring the Division of Statistics to the Census Bureau again made its appearance. The bill establishing the new Department of Commerce was still under consideration, and if Congress should fail

to provide an appropriation for the division, its work would necessarily be transferred to the census (in the Department of Commerce), or would not be done at all. At this date it was already well understood that those who were pushing the Department of Commerce bill would respect Secretary Wilson's wishes so far as practicable, and that, if the danger of transfer, threatening in connection with the appropriation bill as thus described, could be avoided, the transfer would not be provided for in establishing the Department of Commerce. The struggle over the appropriation bill was therefore critical.

In his statement before the committee, Secretary Wilson pursued four distinct lines of argument. The first was an effort to show that the census reports were necessarily less correct than those of the Division of Statistics and to suggest an interested motive for desiring the transfer. In seeking to substantiate the first of these contentions, he broadly made the claim that, as our farmers do not keep books usually, their responses about their own crops were less accurate than the estimates of outsiders. He remarked:

The question is whether we have been doing this [the preparation of crop estimates] with any considerable degree of accuracy. You send the house-to-house visitor to the farmer . . . and he says to me: "How much corn did you raise last year?" I say: "I don't know; I had about so many acres, off and on; I don't know exactly about that." Then he says: "About how much have you got per acre?" I say: "I don't know; it runs from twenty-five bushels to ninety bushels an acre here and there." "How much wheat did you raise?" "Well, I raised some wheat, but it hasn't been thrashed, and I don't know just how it will come out." . . . Now, I am not satisfied that the information gotten by that man can be called facts.¹

And in seeking to suggest a motive for the desire to transfer the division to the census, Mr. Wilson was equally plain-spoken:

I have always talked frankly with you, gentlemen and never concealed anything, and believe now that one of the considerations underlying this inquiry all along the line, wherever it has been made, is to get something to do for a lot of gentlemen in the Census Office who have very little to do now.²

The secretary's second line of argument was based upon the

¹ Testimony before Subcommittee on Appropriations of House Committee on Agriculture, January 14, 1903, *Hearings*, p. 387.

² *Ibid.*, p. 390.

idea of justice to the employees of the Division of Statistics, and its *motif* suggested the "vested-rights theory" as applied to public office. Notwithstanding that he had just remarked that the question at issue was of the accuracy of the Division of Statistics, he now stated that

The real question is whether you can turn my people adrift. In Washington there are seventy, and outside of Washington there are state agents, and so forth, and the whole force amounts in all to 120. . . . The real question is: Can we turn adrift our people . . . ?¹

The third mode of reasoning pursued by Secretary Wilson overlooked or nullified the points he had made in both his preceding contentions. Disregarding the argument that the transfer was desired in order to furnish work for idle men in the Census Office, and also the claim that the real question was a problem of duty to old employees, he now suddenly urged the existence of a danger in the transfer because the employees of the census were so largely occupied with commercial and industrial matters that they would neglect agricultural questions; while, discarding the claim of *duty* to old employees, he argued that no other men in the world could compare with these employees for efficiency.

You are proposing to put agriculture, gentlemen, under commerce; under manufactures, that are the offshoots of agriculture. You are putting the cart before the horse. If you want to economize, send me the Bureau of the Census, but do not ask us to wait on the convenience of some person who may, and in fact must, in the future think a great deal more of commerce and manufactures than of agriculture. . . . The man who is put at the head of the new department . . . will not be in touch with agricultural matters. It will be like the calf sucking the cow through the fence. . . . You will injure and weaken the rest of the bureaus and offices in that department.²

The claim of maximum possible efficiency was also bluntly put:

Nobody could do it [the collection of agricultural statistics] as well as we. . . . No foreign country begins to do for agriculture what we are doing. All of them know this.³ . . .

And again:

They [the employees of the division] are specialists in agriculture, and if you double up the work of agriculture with that of commerce and manu-

¹ *Ibid.*

² *Ibid.*, p. 396.

³ *Ibid.*, p. 398.

factures, then, you are mixing men up and generalizing instead of having specialists.¹

The secretary further made a strong use of pathos. Speaking of the transfer of the division he added :

Suppose, for illustration, one of you is a father and has a little girl in your family, and the trustee of the town comes and says to you : "We have got to look into the question of economy and, at the same time, the question of efficiency. This child of yours must be well fed, and warmed, and clothed, and properly instructed. We have a foundling institution, across the street here, with just as good a roof on it as your roof, and just as good a furnace in the cellar. We have studied the question of nutrition there, and we know how properly to feed and clothe and care for children. Now, what reason have you to give me why I should not take that little girl of yours and put her in that foundling institution ? You could hear from her by correspondence." Well, I am afraid that when it got along about evening she would miss her mother. I am afraid she would be homesick ; and then her mother wants her at home.²

Strange to say, the appeal to pathos made little or no impression upon the committee ! Although the discussion in the House committee showed that the chairman and some important members favored the idea of transfer, this notion was, however, discarded after a survey of the situation by the Senate Committee on Agriculture. Not only were appropriations for the division made as usual, but some \$16,000 was added for fresh work, and, to crown all, the division was raised to the rank of a bureau.

Moreover, Congress, by inactivity and passivity, carried farther the policy suggested in the bill establishing the Department of Commerce and in the agricultural appropriation bill. At the opening of the session 1902-3 the discrepancies between the census and the division, as well as complaints of the work of the Boards of Trade investigating committee and the alleged lack of official propriety in the relations between that committee and the Department of Agriculture, had produced a strong demand from some of the business interests of the country for a thorough congressional investigation of the points at issue between the two offices. Although this investigation was promised by influential men, and, it was supposed, had definitely been agreed upon,

¹ *Ibid.*, p. 400.

² *Ibid.*, pp. 395, 396.

it never was undertaken. This was the more surprising because of startling and previously unsuspected errors in one branch of the work of the Division of Statistics. The division had always prided itself upon its cotton reports, notwithstanding their defective character, as explained in a former article,¹ and had based much of its confidence upon the completeness of its list of cotton-ginners. The Census Bureau in making up its reports had also prepared a list of ginners, and this list had formed the basis upon which it undertook the work of gathering ginning returns (as already mentioned), in accordance with the mandate of the permanent census act. Singularly enough, however, it appeared that the census list of cotton gins included only 32,528 establishments, while that of the department comprised no less than 61,170 gins. This greater completeness of the department list was a source of much satisfaction to officers of the department until, during the congressional session 1902-3, Director Merriam obtained from the secretary authority to institute an official comparison of the two lists. This concession, perhaps, would not have been granted had it not been that the information was desired by the Ways and Means Committee of the House, just then engaged in discussing what was known as the "Burleson bill"—for taxing baled cotton and using the revenue to collect statistics concerning that staple.² The investigation produced a strange result. In the words of a report made by the Ways and Means Committee to the House:

So far as the comparison . . . progressed, it . . . demonstrated the the correctness of the Census Office list and . . . developed the fact that the similar list of the Department of Agriculture is the outgrowth of a continuous compilation for years, unaccompanied by any systematic attempt to eliminate the names of establishments abandoned, burned, or consolidated, or of changing ownership or management. . . . Many of the establishments of the Census Office list are now represented upon the list of the Department of Agriculture by two, three, and in some cases by half-a-dozen or more names, representing parties who have managed some ginning establishment at some time.³

¹ See this JOURNAL for December, 1902, pp. 44 *et seq.*

² *House Bill No. 17, 157*, Fifty-seventh Congress, second session, p. 157.

³ *House Report No. 3763*, Fifty-seventh Congress, second session, p. 3.

The inquiry, moreover, indicated the omission of a vast number of actual gins by the department. It was learned upon good authority that in an important southern state the gins omitted by the department actually ginned over one-half of the cotton product of that state. Final returns of the investigation were, however, never given to the public, the census authorities having for some unexplained reason determined to hold them back.

Very serious errors, too, had been made by the department in figures for live-stock published in the *Crop Reporter* for February, 1903, during the congressional session. As sketched in a former article, the department had fallen into so much difficulty with its live-stock estimates that their publication had for a time been suspended. A resumption of the estimates was therefore anticipated with interest by experts. Yet the figures, when they appeared, seemed to be seriously out of joint with known facts. This was particularly true in the case of sheep. A rough correspondence seemed to have been established between the census and the department as concerned sheep, but it had been attained only by neglecting the fact that department estimates were given for January 1 in each year, while census returns are for dates six months later. It is between January and June that the birth of young sheep chiefly takes place, and for this and other reasons the apparent harmony between the department and the census really meant the very widest divergence between them. State returns from the West, too, appearing at about the same time, helped to discredit the department's new returns for live-stock. Gross errors also appeared in the wheat estimates published early in 1903.

VI.

So much of criticism has been offered in the course of this discussion with reference to the organization of our statistical service that some brief suggestions for constructive work in reforming it may be seemly. Enough has already been said to indicate the opinion that the best remedy that could be applied to the present system would be its total abolition followed by reconstruction on other lines, as already suggested.

If it should be decided to turn from the present system of estimates to one based on information directly obtained from those connected with the production and marketing of the crop, it is clear that two sorts of mechanism would be needed: one like that already developed in the Census Bureau for ascertaining the facts of acreage, yield, and any others, as, *e. g.*, cotton ginned; the other like that now conducted by the Weather Bureau for furnishing data regarding the climatic conditions in different sections, which, though vague and general, would furnish private estimators the data for making judgments. This, therefore, would dictate the immediate transfer of the duties now performed by the Division of Statistics to the census and their modification in accordance with census ideas and methods. Nor does the desirability of such a transfer depend solely upon the possible adoption of the census methods of gathering data already advocated. Should such an idea be rejected, the case for transfer is weaker. Even if the present system were to be retained, however, it would seem that the office which furnished the basis for the department estimates (the regular census) should also control the mechanism which formulates such estimates, or, in default of such control, should be granted full faith and credit by those who prepare the estimates. This is necessary in the interest of harmony, unanimity, and decency, in order to avoid discredit for the government figures, as has been shown at such length. Added to these considerations are those relating to economy and the avoidance of duplication so often urged in the past. This suggestion does not, of course, necessarily imply an amalgamation of the Division, or Bureau, of Statistics with the census proper. The end just indicated (restoration of harmony in returns) could doubtless be gained by merely placing the Division, or Bureau, of Statistics under the control of Secretary Cortelyou as an integral part of his department. While retaining separate organizations under a common head, the work of the two offices could thus be harmonized and co-ordinated.

It may be that influences to which reference has already been made will not permit the transfer of the crop reports to the census or the establishment of an *entente cordiale* in the way just

suggested. Should this turn out to be the case, it is clear that the cause of reform in crop-reporting must fail of attaining its object until the obstacles thus thrown in its path can be overcome. In the meantime, however, there are certain considerations, dictating immediate action toward needed changes, whose force can be contested by no one. If crop reports are to be continued on their present basis and under their present management, it will be granted that they should represent the truth and nothing else. These facts consist of the information sent in by the different classes of correspondents themselves, and not of some person's opinion of the accuracy of the reports of such correspondents. In short, the returns published by the government should be merely a plain and accurate statement of what the correspondents of different classes have reported. The work of the government statistician would then be merely to supply the public with a condensation of the reports of the correspondents.

Secondly, it must be clear that the methods employed in computing the final averages, for consolidating different sets of returns, etc., where such consolidation has taken place, and all other details concerning the work of the office, should be made known. It would be easy to publish a pamphlet for free distribution explaining the precise and invariable rules laid down for the conduct of the office force in preparing reports—rules which should never be departed from, save upon due notice given to the public.

Quite as important as either of these suggestions, however, is the need of a change in the make-up of the force of correspondents employed by the Department of Agriculture. Instead of being, as now, made up chiefly of men who (as has been admitted) are interested solely in one direction, it should be sought, so far as possible, to have the outside force composite in character, including within itself men of diverse interests, whose varying estimates would mutually tend to offset bias and to arrive at an estimate approximately correct. Above all, absolute publicity as to the composition of the corps of correspondents, their reports, the mode of appointing the men, and all

other matters of like nature should be guaranteed. It seems almost unnecessary to say that, within the department, the force should, as recommended by the Boards of Trade Committee, be appointed in accord with business principles, upon a merit system superseding the political influences now said to be dominant in the department.

All these suggestions may be condensed as follows:

1. Abandon the present system of estimates on yields of staple products.

2. Substitute for it an actual enumeration of:

a) Acreage planted at the outset throughout the country for each crop.

b) Distribution of this acreage geographically and by crops.

3. Add to this regular reports on:

a) Climatic conditions—as is now done by the Weather Bureau.

b) Changes in acreage, *i. e.*, acreage abandoned, etc.

c) Such other returns as can be gathered by census methods, *e. g.*, for ginned cotton, threshed wheat, etc.

4. Whether the foregoing suggestions be accepted or not, transfer the crop-report service to the Department of Commerce, possibly amalgamating it with the Census Office.

5. If it be impossible to act upon suggestions 1–4, as just made, introduce in any event, into the system now employed by the Department of Agriculture the following changes:

a) Report estimates of different classes of correspondents instead of those of the statistician.

b) Make these different classes as numerous as possible, *i. e.*, select as local and state correspondents not merely farmers, but also those who are interested in other directions, and give the latter persons full and fair credit.

6. Reorganize the Division of Statistics in the Department of Agriculture, assuring:

a) That merit, and not political influence, shall control appointments, as urged by the Crop Statistics Committee.

b) That special agents shall be chosen after a prescribed test of efficiency.

c) That absolute publicity shall prevail as to the methods, correspondents, personnel, and all other matters relating to the work of the department.

These reforms, or other action designed to attain the same end, are earnestly to be demanded, for reasons now fully set forth. It is for the business interests of the country to see that needed action is taken without further delay.

It may be possible to discuss, in a later study, certain special problems involved in carrying out these suggestions.

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